

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
15 September 2005 (15.09.2005)

PCT

(10) International Publication Number
WO 2005/084410 A2

(51) International Patent Classification: Not classified

(21) International Application Number:
PCT/US2005/007524

(22) International Filing Date: 3 March 2005 (03.03.2005)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/550,015 3 March 2004 (03.03.2004) US

(71) Applicant (for all designated States except US): **ESSENTIA BIOSYSTEMS, INC.** [US/US]; 1928B Old Middlefield Way, Mountain View, California 94043 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **DAKE, Michael D.**; 665 Geron Road, Stanford, California 94305 (US). **WAUGH, Jacob M.**; 4020 El Camino Real #1116, Mountain View, California 94040 (US).

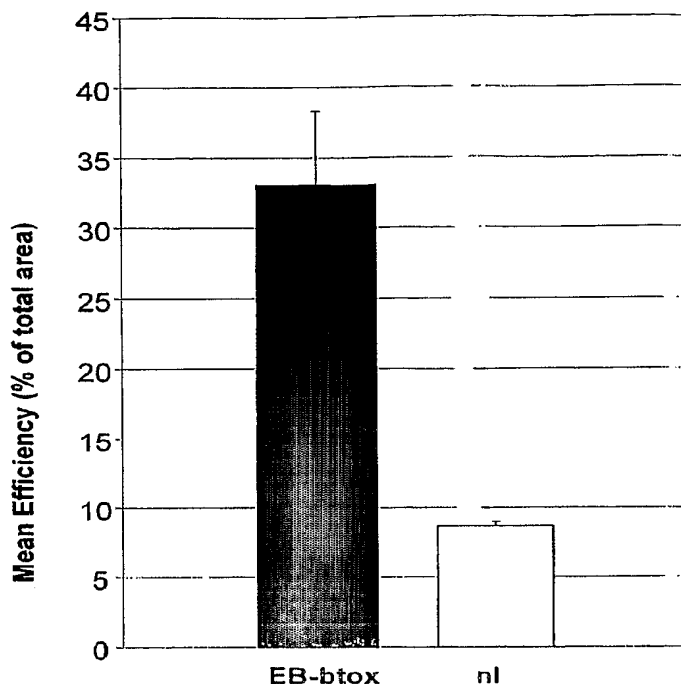
(74) Agent: **ENG, JR., Joseph D.**; Morgan & Finnegan, LLP, 3 World Financial Center, New York, New York 10281-2101 (US).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

[Continued on next page]

(54) Title: COMPOSITIONS AND METHODS FOR TOPICAL APPLICATION AND TRANSDERMAL DELIVERY OF BOTULINUM TOXINS



(57) Abstract: A composition for topical application of a botulinum toxin (including botulinum toxin derivatives) comprises a botulinum toxin and a carrier comprising a polymeric backbone comprising a long-chain polypeptide or nonpeptidyl polymer having attached positively charged branching or "efficiency" groups. The invention also relates to methods for reducing muscle paralysis and other conditions that may be treated with a botulinum toxin, particularly paralysis of subcutaneous, and most particularly, facial, muscles, by topically applying an effective amount of the botulinum toxin and carrier, in conjunction, to the subject's skin or epithelium. Kits for administration are also described.

WO 2005/084410 A2



Published:

— without international search report and to be republished
upon receipt of that report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.